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Patent US (510)
Attorney Docket: 612,406-021
JUN 24 2003
TECH CENTER 1600/2900
[Formerly Docket 271/144]

REMARKS

Reconsideration of the rejections set forth in the Office Action dated December 18, 2002, is respectfully requested. Claim 29 has been amended. Support for this amendment can be found in the specification at, e.g., page 4, lines 12 – page 5, line 38 and page 9, line 16 – page 13, line 19. Therefore, no new matter was added with this amendment. Claims 29-62 remain pending.

35 U.S.C. § 112, first paragraph

Claims 29, 31, 43, 46-52, 60, and 61 were rejected under 35 U.S.C. § 112, first paragraph, for reasons made of record in Paper No. 22. The examiner alleges that amended claim 29, which claims a generic supramolecular nanosystem, is broader in scope than the originally claimed system since it is no longer limited to non-helical oligomers. The examiner further alleges that the presently claimed structure encompasses any DNA sequence that can hybridize to one another. Claim 29 has been amended to require a “first pentopyranose oligomer” and “a second pentopyranose oligomer, wherein the second pentopyranose oligomer is capable of pairing non-covalently with the first pentopyranose oligomer.” Applicants submit that the claim as amended does not encompass DNA and RNA sequences (which comprise furanose sugar rings), because DNA and RNA sequences are not pentopyranose oligomers.

The examiner also alleges that the specification does not disclose representative examples of the claimed composition that would indicate to one skilled in the art that applicants, at the time of filing, were in possession of the full scope of the claimed invention. In particular, the examiner alleges that the specification does not provide examples of or identify any other actual supramolecular nanosystems possessed by applicants at the time of filing beyond a gold cluster. Applicants respectfully direct the examiner's attention to the specification at, e.g., page 11, line 7

– page 13, lines 19, which describes the synthesis and characterization of a pentopyranose monomer coupled to a chelating agent. Amino acids, peptides, fluorophores having primary and secondary amines, and chromophores having primary and secondary amines have also been included in the functional unit Markush group. Support for these functional units can be found in the specification in FIGS. 1-2, example 4 on page 11, line 7 – page 13, line 14, and page 6, lines 1-25. FIG. 1 clearly illustrates amino acids coupled to the nucleobases. Once a single amino acid is coupled to the nucleobase, it is well known to a person skilled in the art how to couple additional amino acids to the attached amino acid to form a peptide. And in FIG. 2, the examples given for the functional units include a metal cluster, chromophore, metals, and metal ions. In addition, example 4 describes the attachment of an amine functional group to a pentopyranose. The chemistry used to couple this functional unit is the standard active ester chemistry used for the coupling of amines. Therefore, the chemistry shown in this example is applicable to any amine-containing moieties, e.g., amino acids, peptides, fluorophores containing an amine, and chromophores containing an amine (e.g., azobenzene). Applicant respectfully requests withdrawal of the rejection and reconsideration of the pending claims.

New Grounds of Rejection – 35 U.S.C. § 112, first paragraph

Claims 29, 31, 43, 46-52, 60, and 61 were rejected under 35 U.S.C. § 112, first paragraph. In particular, the examiner alleges that the scope of newly added claim 29 is broader than the scope of the originally claimed invention in that new claim 29 encompasses a nanosystem with helical oligomers. Applicants respectfully argue that the amended claim 29 does not contain helical oligomers since the claim specifies “pentopyranose oligomers,” which are inherently non-helical in nature. (See specification at, e.g., page 4, lines 18-38). Therefore,

applicants respectfully request withdrawal of the rejection and reconsideration of the claims as amended.

New Grounds of Rejection – 35 U.S.C. § 102

Claims 29, 31, 43, 47-52, 60, and 61 were rejected under 35 U.S.C. 102(a) as being allegedly anticipated by Mirkin et al., NATURE 382: 607-609 (August 1996) and Alivisatos et al., NATURE 382: 609-611 (August 1996). Applicants submit that the cited references do not disclose all of the limitations of the pending claims. The references disclose the synthetic methods using DNA, which are furanose oligomers, not pentopyranose oligomers. Therefore, applicants respectfully request withdrawal of the rejection and reconsideration of the claims as amended.



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CONCLUSION

For all the foregoing reasons, Applicants assert the claims are in condition for allowance. Favorable action on the merits of the claims is therefore earnestly solicited. If any issues remain, please contact Applicant's undersigned representative at (949) 737-2900. The Commissioner is hereby authorized to charge any additional fees that may be required to Deposit Account No. 50-0639.


Respectfully submitted,

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Dated: June 18, 2003

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